

SCIENCE & GOVERNMENT REPORT

The Independent Bulletin of Science Policy

Vol. III, No. 4

P.O. Box 21123, Washington, D.C. 20009

Feb. 15, 1973

NSF's Research Budget: An Inside View of the Grant Process

First of a series of non-official renditions concerning how the major federal granting agencies decide yes or no on grant applications.

Over the next year, some 15,000 researchers will seek to share the \$275 million that the National Science Foundation plans to dispense for its traditional program of individual project research. Perhaps 5000 will be successful; of these, almost all will receive less than half the money they sought, and in many cases, as little as 30 percent.

Who makes the decisions, what are the criteria that separate the blessed from the disappointed, and are there, as folklore holds, tricks of "grantmanship" that can make a difference? SGR has spent the last several weeks trying to find out by chatting, on a non-attributable basis to encourage candor, with some of the people who staff the innards of the NSF bureaucracy. Our conclusion is that the present system, though honestly administered and brimming with good intentions, is surprisingly uneven and often arbitrary in its criteria and methods, and that it would be desirable for Congress or perhaps the National Academy of Sciences to undertake a diligent inquiry into this vital aspect of the economy of science. And, yes, a shrewdly composed application does hold an edge over a less polished competitor, even though their substance and the quality of the applicants may be similar. (See *Grantmanship*, p. 2).

NSF's \$275 million in project research money, as distinguished from funds provided for national research centers, oceanography, Research Applied to National Needs, and other of the Foundation's many activities, is distributed through a Research Directorate that is divided into six disciplinary divisions: environmental sciences, biological and medical sciences, engineering, social sciences, mathematical and physical sciences, and materials research.

The Directorate is headed by one of NSF's six assistant directors, Edward C. Creutz, who previ-

ously was director of research of the General Atomic Division of the General Dynamics Corporation, and before that head of the physics department and nuclear research center at the Carnegie Institute of Technology. The six divisions under Creutz are each headed by a director, and then, varying from case to case, they are subdivided into sections and individual programs that report directly to the division director.

However, within this complex and varying table of organization, the key figures in all cases are the program directors, associates and assistants, of whom there are 75 within the 1200-member staff of the Foundation. To an extent that is not widely recognized, they are the ones who in reality decide yes or no and how much, and rarely at all are their decisions altered by the staff structure above, though major—but not binding—influences are exerted by outsiders whose opinions are routinely solicited.

How do the program directors operate? Well, as one top NSF official explained to SGR, "There's not much uniformity. We let them use their judgment." Applications are routed to the program directors by NSF's central processing office, which, two years ago, confronted by a 10-20 per cent growth rate that now annually adds up to 25,000 applications, active grants and contracts, took to

(Continued on page 2)

In Brief

Some elders of science recall with dismay that Nixon's new economic czar and main input for science policy affairs, Treasury Secretary George P. Shultz, has sometimes spoken of the "arrogance" that he encountered among scientists when he was a young economics teacher at MIT after World War II...

With the White House Office of Science and Technology lacking a director or deputy director and due to expire in July, the man in charge is David Beckler, a veteran staffer, who says, "I'm organizing an orderly retreat."...

Some recent departees from federal service are expressing shock over the gap between public and private salary scales, but it's the public pay they now find at the upper end of the scale. One ex-Washington official noted that his government assistant drew \$21,000 a year. "We couldn't possibly match that in the private sector," he said.

And Ask if He'd Like an Appointment

Stapled in the centerfold of the latest NSF staff telephone directory is a form titled, "Record of Telephone Threat," including a section inquiring: "If a bomb threat, when will it explode? Location of bomb. Reason for placing bomb. Name of caller."

NSF RESEARCH BUDGET (Cont'd from page 1)
the computer to provide continuous "tracking" of all that paper.

Since all the program directors work either alone or at most with a few fulltime professional colleagues, they personally examine every arriving application—no small task, considering that the numbers total 300 to 600 per year for each program, and that an average application is in the neighborhood of 25 pages. If the application looks anywhere near "reasonable"—as many program directors put it—the next step is to solicit through the mail confidential opinions, consisting of essay-style comments on the proposal, plus an "overall rating" that runs from "excellent," through "very good, good, fair, poor," with it being generally agreed that anything below the top two has very little chance. As for what the reviewers are supposed to comment on, that, too, varies somewhat from program to program, but in general, the directors want their thoughts on the scientific validity of the proposal, its importance for "advancing the field," the "reasonableness" of the budget, and the relationship between the appli-

Program Directors: At the Center of NSF's Grant System

What are some of the major professional characteristics of the program directors who occupy so important a position in NSF's support of project research?

Almost all hold Ph.D.'s in the disciplines they supervise or in a nearby field. About one-third are on leave to NSF for a year or two from research or administrative posts. The others are considered permanent appointees, and of these at present, about half have served with NSF for at least 5 years. In almost all cases, their financial rewards are substantially superior to the prevailing rates of the academic world. Depending on length of government service and whether they bear the title of program director, associate, or assistant, their salaries range from \$19,700 to \$34,900, with most in the vicinity of \$30,000. Fairly representative is a program director who came to NSF three years ago from an associate professorship at a major university, and is now receiving a salary of slightly over \$30,000.

Having operated on essentially level budgets for the past three years, most directors radiate a sense of feeling squeezed between their NSF superiors, who listen to their requests and then hand them a budget to distribute more or less at their own discretion, and their wailing colleagues in the field, who demand to know why more money isn't forthcoming.

"Grantsmanship" & Other Matters

NSF officials specify scientific merit as the key determinant in awarding research project grants, but privately some concede that generally unspoken of elements can affect the balance. Following are examples from conversations with Foundation executives:

"It helps if there's some evidence of frugality, like saying that a certain piece of equipment is absolutely essential, but that you'll borrow rather than buy."

"It's good for a youngster to list some big shot as co-principal investigator, but you've got to be careful with that. We'll check to see what his other commitments are. If he's serving just as a front, it won't help at all."

"Relevance? We have no formal requirement for stating anything about it in an application, but it's significant in borderline cases—and more and more cases are borderline these days."

"Anyone who can come up with something that you can put to work right away has an inside track."

"We get doubtful if a guy with a good but ordinary research record proposes to solve some colossal scientific problem. It's better to have a reasonable match between past performance and what you're planning."

Congressional intervention in behalf of an applicant? "Absolutely worthless and may even do harm. We kiss it off with a courteous reply about the normal reviewing process, and if we ask for data from the program director, we never tell him that it's for a congressman."

cant's past performance and the ambitiousness of the project.

How many appraisers and who are they? That, too, turns out to be a matter of individual discretion, with the numbers varying from three or four in most cases to as many as a dozen in others. One commonly expressed opinion was that in the "hard" sciences, it's easier to size up a proposal and the ratings tend to be fairly consistent; hence fewer mail reviews. In the social sciences and in newly developing interdisciplinary fields, the score-keeping was said to vary widely, and the tendency was to collect a greater number of opinions.

In general, the "mail reviewers" are people in whom the directors have confidence, either from personal acquaintance, professional reputation, or because they have been recommended by the members of another major element in the granting system: the program advisory panel, of which there are 24, one for each program, with some overlap, usually consisting of 12 members per panel who meet with the program director for three two-day sessions per year. (Remuneration, \$75 per day,

(Continued on page 6)

The SST: Can the Dead Bird Fly Again?

With a fresh infusion of research funds, the Nixon administration is trying to breathe new life into the supersonic transport (SST) project that was killed by the Senate two years ago. But the corpse may prove difficult to resurrect. The Anglo-French version of the SST, known as Concorde, seems headed for financial debacle in the wake of decisions of Pan American and Trans World Airlines to cancel their options. And a panel of the National Academy of Sciences warned this week that, if a fleet of SST's disrupts the atmosphere as some experts predict, then there would probably be substantial harm to life on earth. As a cautiously worded Academy report put it: "Sufficient knowledge is at hand to warrant utmost concern over the possible detrimental effects on our environment by the operations of large numbers of supersonic aircraft."

Ever since the SST was defeated by a cliff-hanging vote in the Senate in early 1971, there have been reports that President Nixon would seek to revive it. Such speculation peaked in the weeks following the President's re-election, and a worried Senator William Proxmire (D-Wis.), a leading opponent of the SST, even conducted a rush two-day hearing in December in an effort to head off revival attempts.

As it turned out, the speculation was at least partially right. Although the Administration's proposed budget for fiscal year 1974 contains no money for prototype production, it more than doubles the funding for research aimed at developing a plane that will perform better and cause less environmental damage than the Boeing SST that was vetoed by Congress. The reason for expanding the research program, according to Administration budget documents, is to keep open the option of initiating development of an advanced SST later in the 1970s.

The chief focal point for the research effort is the National Aeronautics and Space Administration, where funds for advanced supersonic research and technology will jump from \$11.7 million in fiscal 1973, the current year, to a proposed \$27.6 million in fiscal 1974. Of the proposed new spending total, \$6.5 million would be devoted to propulsion, \$7.4 million to structures and materials, \$3.3 million to aerodynamics, \$4.7 million to stability and controls, and \$5.7 million to systems studies.

Part of the NASA work is aimed at producing a more efficient and economically viable aircraft by improving aerodynamic efficiency, the propulsion system, fuels, control systems, and composite materials used in the aircraft structure. The remainder of the work is aimed at overcoming such environmental problems as engine noise, the sonic boom, and pollution of the atmosphere. Major

attention will be focused on the possibility of developing a "variable-cycle" engine which would operate at subsonic speeds around airports (thus cutting the noise problem and saving fuel as well), then switch over to supersonic speed at higher altitudes.

Although the pace of the research program has been approved by such SST critics as *The Washington Post*, Proxmire declared on Feb. 2 that he was "deeply concerned" that the NASA budget request for supersonic research "could be a long step toward reviving the SST." He pledged that, as chairman of the Senate appropriations subcommittee which oversees NASA spending, he would subject NASA to "the most searching scrutiny on this particular request." Noting that the proposed budget of the Federal Aviation Administration also contains \$14.5 million for SST-related work, he added: "This total of \$42.1 million comes as quite a surprise to those who thought the federal government's involvement with the SST was past history."

The effort to devise a better plane is paralleled by an effort to assess the potential environmental hazards that would be caused by a fleet of high-altitude aircraft criss-crossing the upper atmosphere. The bulk of this work is sponsored by the Department of Transportation's Climatic Impact Assessment Program (CIAP), which has received about \$7 million to date and is budgeted for another \$5.8 million in fiscal 1974. The program is

(Continued on page 4)

Will Bobst Play NIH King-Maker?

Pharmaceutical executive Elmer H. Bobst, a close associate of the White House, may have a major voice in determining who gets picked to serve as director of the National Institutes of Health and in filling some of the other high-level vacancies in the administration's health programs. Bobst is said to be interviewing prominent figures in the biomedical research community, and while no mention is made of a particular job, the assumption is that he is interested in more than a few hours cordial conversation with selected medical experts. One of those who has seen Bobst recently is Theodore Cooper, director of the National Heart and Lung Institute. Cooper acknowledged to SGR that he was invited down to Bobst's Florida home in early January to discuss the cardiovascular program. He said the conversation lasted about six hours and broadened into a discussion of research problems in general. But Cooper stressed: "He didn't offer me a job on behalf of the President or anyone else."

Fulbright, Aiken Ask State Dept. to Justify U.S.-Israeli Science Pact

Senators J. William Fulbright (D-Ark.) and George D. Aiken (R-Vt.), citing an account that appeared exclusively in *Science & Government Report* (Vol. I, No. 22), have asked Secretary of State William P. Rogers to justify plans for the US to invest in a joint US-Israel Binational Science Foundation for the support of research in Israel.

The Foundation, drawing funds from a \$60-million endowment that is supposed to be equally provided by the two countries, was agreed to last September to take the place of a diminishing supply of excess Israeli currency that the US has provided for the support of research in Israel. Under the agreement, the US is to provide \$30 million, while the Israeli contribution is to consist of \$30 million that Israel owes the US, but that will be contributed to the endowment, rather than repaid to the US Treasury. Commencement of the Foundation's operations awaits appointment of its binational 10-member board, which, as of two weeks ago, was expected shortly.

Fulbright, chairman of the Foreign Relations Committee, and Aiken, the ranking Republican member, noted that, under a law adopted by the last Congress, all Executive Agreements are to be

reported to the Congress and that their committee "has organized a system for the precise and careful review of these agreements as they are submitted."

The "financial arrangement," they stated, "quite clearly is not one of joint financing but one in which the financing is provided entirely by the United States. Insofar as the Israeli contribution is provided by money owed to the United States, and that this money in turn is to generate interest not for the United States government but for the Binational Foundation, there would seem to be in effect no Israeli contribution either to the endowment or to the operating costs of the Foundation."

The two Senators also stated, "A reading of the agreement does not reveal whether the research activities of the Foundation are designed to advance the purely domestic objectives of the Israeli government, or whether they are projects which would be of mutual advantage to both countries. We would appreciate any information you can provide showing the specific advantages to the United States deriving from the Foundation's activities."

The letter concluded with extensive excerpts from the SGR article, and a request for Rogers' comments.

SST (Continued from page 3)

supporting work by more than 60 contractors—governmental, academic, industrial and non-profit—on such topics as the dynamics and chemistry of the stratosphere, the engine emissions apt to be exhausted by high-altitude aircraft, and the biological effects that might be caused by atmospheric changes.

Although the climatic assessment program is being sponsored by the Department of Transportation, the very department which had previously been pushing hard for the SST, it gives the appearance of an objective search for truth. One of the scientists whose work is supported by CIAP is Harold S. Johnston, professor of chemistry at Berkeley, who is perhaps the leading proponent of the theory that SST exhausts could initiate catastrophic changes. And the program is being monitored by a committee of the National Academy of Sciences.

The chief climatic concern is that the exhausts from a fleet of SST's might partially destroy the protective shield of ozone in the stratosphere, thus allowing an increase in the amount of ultraviolet radiation reaching the surface of the earth. The exhaust products which are currently deemed most dangerous—largely as a result of Johnston's work—are the nitrogen oxides, but there is lingering concern that water vapor might play some role in

destroying ozone in the upper half of the stratosphere. Boosters of the SST claim they could design an engine that would largely eliminate the nitrogen oxide emissions, but water vapor would probably not be as susceptible to a "technological fix."

At this point, there is no consensus as to what impact the SST might have on the ozone. There is uncertainty about the actual composition of SST exhaust products, the normal makeup of the atmosphere, the chemical reactions that would occur when the exhaust hits the atmosphere, and the effect of atmospheric motions on the whole process. Some of the questions may be answered by 1974 when CIAP is required to produce an assessment of the likely impact of all high-altitude aircraft projected for 1990 (not just the SST, but subsonic and hypersonic aircraft and rockets as well).

If the SST does result in an increase in ultraviolet radiation reaching the earth's surface, then there is a high probability that humans and other life systems would suffer significant harm, according to a panel appointed by the Environmental Studies Board of the National Academy of Sciences-National Academy of Engineering. The 9-member group, which was headed by Kendrick C. Smith, associate professor of radiology at Stanford

(Continued on page 8)

Hard Times, New Thrust for Science Education

"We're not going to accept proposals to improve the conventional ways of doing things. That's the choice we've made, and a lot of academics are not going to be happy about it."

That message comes from Keith R. Kelson, the National Science Foundation's acting assistant director for education, by way of explaining how NSF's newly restructured science education programs are going to work. No part of the Foundation has gone through such inner turmoil in recent years, and Kelson has spent the past few weeks explaining to groups of educators just what it all means. The response, he claims, is often approval of the philosophy behind NSF's new approach, coupled with expressions of dismay at reduced funding levels and occasional anger that someone's favorite program has been scuttled.

The education programs at NSF have generally suffered more at the hands of the budget cutters than have NSF's research support programs. The squeeze got so tight that, in September 1971, Lloyd G. Humphreys, who was then NSF's assistant director for education, resigned in frustration, complaining that budget cuts had "torn the heart" out of the science education programs. No permanent successor has ever been named to replace Humphreys, a measure, perhaps, of the Administration's interest in the area of science education.

Humphreys had been upset about cutbacks in the fiscal 1972 budget and in the fiscal 1973 budget that was in preparation at the time he abruptly left. But the squeeze on education has continued ever since. In fiscal 1973, the current year, the Office of Management and Budget impounded \$30.8 million that was originally planned for science education, reducing the funding in that area from a planned \$77.8 million to an estimated \$47.0 million. The funds held back in 1973 were then applied to the Administration's recently released budget proposals for fiscal 1974, which starts next July 1. Even so, the total funding proposed for science education next year is only \$60 million, well below the 1972 figure of \$73.4 million.

The reduced funding has been paralleled by a significant restructuring of NSF's entire educational program. Over the past few years, as money has gotten scarce, demand for scientists and engineers has slackened, and national interest has focused on the solution of societal problems, NSF has gradually moved away from its traditional emphasis on developing scientists trained in the traditional disciplines and has launched programs aimed at a broader constituency. The key elements of the new educational thrust include:

—A "scientific literacy" program which seeks to provide all students, not just those bound for

scientific and engineering careers, with a sound grounding in science. As NSF describes the effort, it seeks to meet "the science education needs of all kinds of students at all levels of education" instead of following NSF's traditional emphasis on "what science needs for its own development." Although there was considerable doubt whether this new program was consistent with NSF's statutory mission to increase the nation's research potential, it has been accepted by Congress and no one seems to have contemplated a serious challenge.

—Emphasis on developing instructional methods and materials that are oriented around such practical problems as energy and the environment rather than around the conventional academic disciplines. Those courses, according to Kelson, will be based on "a down-to-earth, practical approach ... as distinguished from the more theoretical approach." One aim is to produce materials to train the scientific counterpart of a practicing physician—namely, a well-trained individual who would deal with difficult practical problems instead of pursuing a research career.

—Greater emphasis on supporting innovative research on educational approaches and less emphasis on supporting routine activities that have continued year after year. In the latter category,

(Continued on page 8)

Joint US-USSR Commission to Meet

Following two postponements last year, the Joint US-USSR Commission on Science and Technology is now scheduled to hold its inaugural meeting March 19 in Washington. Organized on the US side by Edward E. David, Jr., Nixon's recently resigned science adviser, following the President's visit to Moscow last year, the Commission is intended to facilitate scientific and technical cooperation between the two countries.

David's place as co-chairman has been assigned to NSF Director H. Guyford Stever in his new capacity as science adviser. The Soviet co-chairman is Vladimir A. Kirillin, chairman of the State Committee on Science and Technology. Last year's postponements, according to White House sources, were caused by scheduling rather than substantive difficulties.

Heading the US secretariat for the commission is Norman Neureiter, a foreign service officer who has returned on temporary assignment to the State Department's Office of International Scientific and Technological Affairs following an assignment with the White House Office of Science and Technology, which is scheduled for abolition next July.

New House Appointments for OTA

The newly established congressional Office of Technology Assessment (OTA) is still gearing up to get going, but apparently is still some months away from commencing operation. (SGR Vol. II, No. 15).

The latest development is the reconstitution of the House portion of the 12-member congressional board that will oversee OTA's activities. Since that chamber is not a continuing body and, therefore, must reappoint all its internal structures following each election, it was necessary for the party leadership to appoint all six House members for the 93rd Congress. The Republicans remain as before: Charles A. Mosher, of Ohio; Charles S. Gubser, of California, and James Harvey, of Michigan.

On the Democratic side, vacancies were created by the election defeat of Earle Cabell, of Texas, and the impending appointment of Mike McCormack, of Washington, to chair a newly created energy subcommittee of the House Science and Astronautics Committee. McCormack, a chemist, is Congress's only former working scientist, and is well regarded by his elders as an informed voice on

scientific matters. However, the new chairmanship and the OTA post were considered to be too many prizes for a relative youngster.

The lone holdover from last year's House Democratic appointments is John W. Davis, of Georgia, chairman of the Science and Astronautics subcommittee on science, research, and development. The others are Olin E. Teague, of Texas, chairman of Davis' parent committee, and Morris Udall, of Arizona, chairman of the Interior Committee's environment subcommittee.

The Democratic Senate members are: Edward M. Kennedy, of Mass., who will chair the board; Hubert Humphrey, of Minnesota, and Ernest F. Hollings, of South Carolina, all holdovers. On the Republican side in the Senate, Clifford Case, of New Jersey, was appointed to fill the vacancy created by the election defeat of Gordon Allott, of Colorado; Richard S. Schweiker, of Penn., and Peter H. Dominick, of Colorado, are the others.

At present, OTA has neither money nor staff, and probably will not have either until a supplemental appropriation goes through in the spring.

NSF RESEARCH BUDGET *(Cont'd from page 2)*

plus a free trip to Washington, a chance to meet with colleagues, and, of no small importance, an opportunity to keep abreast of what others in the field are planning.)

But unlike at the National Institutes of Health, where outside scrutiny for funding of grant applications is required by law, the role and authority of NSF's advisory panels are discretionary with the program director. Some submit every application, with the mail reviews and their own comments, for consideration by the panel, and wholly or in large part abide by the panel's decisions. Others, usually claiming that the application load is too great to be sensibly disposed of in six days of meetings a year, use their panels simply to keep them abreast of scientific, administrative and financial matters in the discipline. Some, according to a top NSF official, "make the decisions themselves, maybe with just a mail review or two in cases where they're doubtful."

When all the appraisals, of whatever sort, have been made, there's the program director with desk piled high. What happens next tends to vary from program to program.

According to one NSF official, when William D. McElroy directed NSF, his guiding rule was "take care of the proven performers"—and that, it is said, still guides some program directors. McElroy's successor, H. Guyford Stever, according to this same official, has neither rescinded that dictum nor

approved it. "I doubt if anyone in the house has any idea of what Stever thinks about this matter," said the official.

So, the program directors tend to go their own way. One of them, presiding over several million dollars a year, said that he feels "uneasy if the young people aren't getting a good share"—"young" being under 35—but he added that there is no proportion specifically earmarked for the young. Others said that age did not figure in their decisions.

Another explained that since her program can provide only about 30 percent of the funds requested, "my rule of thumb" is that "young investigators can get along without a technician. The important thing is simply to get them started on research. In considering applications from older applicants, we generally cut them down to one technician for every three requested." One director said that he tends to be "particularly hard on the older, established researchers. Some of them think their name alone can swing the matter. I think otherwise."

After an application has been approved by a program director, formal approval is required from two higher levels, but, with few exceptions that's simply a formality. "It's rare for even one in a hundred to be bucked back," a director explained.

For the rejected applicant there is a channel for appeal. He can resubmit his application for another run through the review process.—D.S.G.

Hearings To Be Held On OST Abolition

The administration's plan to abolish the White House science office will be examined by the House Government Operations Committee, but sources there, noting little public reaction from the scientific community or elsewhere, doubt an attempt will be made to thwart the plan.

The hearings, to begin February 26, will be presided over by Chairman Chet Holifield (D-Calif.) in his capacity as chairman of the legislative and military affairs subcommittee. Under consideration will be Executive Reorganization Plan No. 1, which proposes abolition of the Office of Science and Technology, the Office of Emergency Preparedness, and the National Aeronautics and Space Council.

The agenda at present provides only for administration witnesses to appear, but the subcommittee has invited requests from individuals and organizations that wish to testify.

The plan to abolish OST has stirred a good deal of indignation within the scientific community, which fears that it has lost a friend at court. The Federation of American Scientists led the way with an instant protest (SGR Vol. III, No. 3), and dismayed mutterings of one sort or another have appeared in various professional journals and a few newspapers. But as a staff member on the committee said, "There's going to have to be some real indignation out there if we're going to get excited about Nixon's reorganization. He's got a right to handle his staff the way he wants, unless someone can point out some very good reasons why he shouldn't do it in a particular way. And so far, we haven't heard very much."

SCIENCE & GOVERNMENT REPORT

Table of Contents

NSF Research Budget: An Inside View of the Grant Process	
D. S. Greenberg	1
The SST: Can the Dead Bird Fly Again?	
P. M. Boffey	3
Fulbright, Aiken Ask State Dept. to Justify US-Israeli Science Pact	
D. S. Greenberg	4
Hard Times, New Thrust for Science Education	
P. M. Boffey	5
New House Appointments for OTA	
D. S. Greenberg	6
Hearings Set on OST Abolition	7
Rep. Davis Fights Selective Cutbacks	7

P.O. Box 21123B, Kalorama Station
Washington, D.C. 20009
Published 22 times per year
Annual subscription, \$35 (\$45 overseas.)

Rep. Davis Fights Selective Cuts

Rep. John Davis (D-Ga.), chairman of the House subcommittee on science, research and development, has adopted a novel tactic to prevent selective impoundment of NSF funds.

On February 5, the same day that the administration's authorization bill for NSF was introduced, Davis introduced an alternative authorization bill of his own. The Davis bill, known as HR 3610, differs from the administration bill in two main respects. It would allow NSF to obligate \$59 million more than the administration contemplates, thus bringing NSF's total budget up to \$702.5 million instead of the \$643.5 million figure proposed in the President's budget for fiscal 1974. And it would require that any funds impounded by the administration be subtracted from programs across-the-board rather than applied selectively to particular programs.

The bill stems from Congressional anger over the administration's impoundment of more than \$60 million in fiscal 1973, the current year, representing roughly 10 per cent of the Foundation's budget. Many Congressmen found it particularly galling that the administration concentrated its withholding efforts on such NSF programs as graduate student support, institutional improvement and science education improvement—all areas in which Congress had specified minimum funding levels that NSF was supposedly required to meet.

The intent of Davis' bill is to boost funding in these three areas back up to the levels authorized by the House of Representatives last year, with an added proviso that the administration can only cut funds from these programs in proportion to its cuts in other areas of the NSF budget. The bill would not prevent impounding, but it divides the NSF budget into thirteen categories and requires that whatever impounding occurs be allocated proportionally among these categories.

Science & Government Report

Kalorama Station

Box 21123 B

Washington, D.C. 20009

☐ Renew my subscription

☐ Enter my subscription

for ☐ two years, \$65; or ☐ one year, \$35.
(Overseas airmail, \$10 additional per year.)

☐ check enclosed; ☐ please bill.

☐ Send a complimentary copy to:

Name _____

Address _____

Zip _____

Four U.S. Science Attache Posts To Shift Personnel This Summer

Shifts are scheduled to occur this coming summer in US science attache posts in four countries.

Mike Kelakos, who has been stationed in Tel Aviv since 1966, is going to retire.

Oswald Ganley, in Rome for the past three years, is due for reassignment, probably to Washington.

Alan Mencher, whose second tour as attache in London began in 1966, has received approval for a leave of absence to head a study of British government efforts to spur technological innovation; the leave is contingent on receiving financial support for the project, which is planned in conjunction with Cornell University.

Nuel Pazdral, in Warsaw since 1970, has been assigned to study economics, and will be succeeded by Allen Greenberg, currently the No. 2 man in the science office of the US embassy in Paris. Pazdral's post is the only one for which a successor has been named so far.

HARD TIMES *(Continued from page 5)*

for example, NSF will try once again to drop the politically popular summer institutes for training high school teachers, and will try to reorient the institutes toward finding ways to overcome institutional barriers to change within the schools.

—A new effort to assess what works and doesn't work in the educational area. "After 20 years of operation, the time has come for NSF to fund some good hard analytical studies of big educational problems," Kelson says. "We should not assume we know how to solve them." Before pouring money into programs aimed at increasing the number of women and minority groups in scientific careers, for example, NSF intends to fund studies to identify just why these groups are

currently so underrepresented.

—A drastic reduction in the support of graduate students in the traditional scientific programs. The number of graduate fellowships supported by NSF in recent years has held fairly steady at about 1400-1500, down from a level about four times as high during the 1960's. The NSF traineeship program is to be dropped entirely under the proposed fiscal 1974 budget. And the number of students supported as research assistants under NSF grants may also be down from earlier levels as a result of reduced research funding.

So the general picture is one of shorter rations, new emphases that are focused away from the traditional scientific community, and greater emphasis on research and assessment rather than continuing support activities. That's a prescription that is bound to produce anguish in many academic circles, and perhaps on Capitol Hill as well.

SST *(Continued from page 4)*

University School of Medicine, met to discuss the problem for three days in November 1971 and finally issued its report on Feb. 12, 1973.

The panel noted that a small decrease in ozone concentration would result in a large increase in ultraviolet radiation. Using "conservative" assumptions, the panel estimated that a 5-percent reduction in the ozone shield would produce at least 8,000 additional cases of skin cancer per year in the white population of the United States, of which about 300 cases would lead to death. But even more significant, according to the panel, was the possibility that increased ultraviolet radiation might diminish the biological productivity of the ocean, interfere with mating and other behavioral patterns of insects and lower animals, and damage plants, especially agricultural species. The panel made no definitive predictions, but it expressed "utmost concern" and called for research to develop a more conclusive analysis.—P.M.B.

Science & Government Report
Kalorama Station
Box 21123
Section B
Washington, D.C. 20009

Second class postage paid
at Washington, D.C.

NEWSLETTER—

Please expedite delivery directly to addressee

SCIENCE & GOVERNMENT REPORT, ©1973 by Science & Government Report, Inc. All rights reserved. Daniel S. Greenberg, Publisher; Philip M. Boffey, Managing Editor; Bettina Conner, Production Manager. Published 22 times per year at 1629 Columbia Road, N.W., Washington, D.C. 20009. Subscription rate, \$35 a year; overseas airmail subscription, \$45. Second class postage paid at Washington, D.C. Vol. III, No. 4, Feb. 15, 1973.

